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EXAMINER

MEW, KEVIN D

ART UNIT

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2664

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/880,793	Applicant(s) RAM ET AL	
	Examiner Kevin Mew	Art Unit 2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19, 21-23, 30-45, 47, 49 and 56 is/are rejected.
- 7) ☒ Claim(s) 20, 24-29, 46, 48 and 50-55 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3, 4, 5</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Claim Objections

1. Claims 19, 24-26, 45, 50-52 are objected to because of the following informalities:

In line 3, claims 19 and 45, append "s" to "device" in "remote terminal device."

In line 4, claims 24 and 50, append "s" to "device" in "remote terminal device."

In line 4, claims 25 and 51, the symbol L_{new} is not defined.

In line 4, claims 26 and 52, the symbols n , L_{new} and L_{old} are not defined.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 21-22, 47-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Each of claims 21, 47 recites the limitation "allocation table" in line 3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Each of claims 22, 48 recites the limitation "allocation table" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-14, 16, 18-19, 21-23, 30-40, 42, 44-45, 47, 49, 56 are rejected under 35

U.S.C. 102(e) as being anticipated by Carneal et al. (USP 6,847,626).

Regarding claim 1, Carneal discloses a method for communicating with a large number of remote satellite locations (remote units in a satellite communications environment, 108A, 108B, 108C, Fig. 2) comprising simultaneously in random access mode communicating with a plurality of a first set of remote terminal devices (communicating in a contention-type access block, col. 6, lines 41-51) and communicating with a plurality of second remote terminal devices in a dedicated mode (communicating in a non-contention access block, col. 6, lines 52-59) using the same overlapping channels (sharing the same communication channel resources, col. 6, lines 13-52).

Regarding claim 30, Carneal discloses a system for communicating with a large number of remote satellite locations comprising:

a plurality of a first set of remote terminal devices (remote units, 108A, 108B, Fig. 2);

a plurality of second remote terminal devices operating in a dedicated mode

(communicating in a non-contention access block, col. 6, lines 52-59 and 108C, Fig. 2) using the

same overlapping channels (sharing the same communication channel resources, col. 6, lines 13-52); and

a hub site (hub station 104, see Fig. 2) which determines threshold criteria for determining when said remote terminal devices are active (the hub station uses a continue to transmit within a certain period of time as a threshold, col. 10, lines 1-19), and allocates said channels (dedicated resources within the non-contention access block are assigned to these remote units, col. 10, lines 1-19).

Regarding claim 2, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claim 1, wherein when one of said plurality of second remote terminal devices (remote units, col. 4, lines 1-16 and Fig. 2) wants access to an inbound channel of one of said large number of remote satellite locations (hub station, 104, Fig. 2), said one of said a plurality of second remote terminal devices contends for an inbound channel (contention-type access block is used for initial attempts to transfer blocks of data from the remote units to the hub station, col. 6, lines 41-51), and if a collision occurs with another of said plurality of second remote terminal devices or plurality of first remote terminal devices (if collision occurs, the hub station assigns to each remote unit involved in the collision a resource within a non-contention access communication resource over which the remote unit retransmits the block of data, col. 4, lines 1-16), transmission from said one of said plurality of second remote terminal devices is repeated at one of random/pseudo random times, using random/pseudo random inbound resources, and random/pseudo random times using random/pseudo random inbound resources (transmission using pseudo random channel

resources, col. 5, lines 62-67 and col. 6, lines 1-12), until said one of said plurality of second remote terminal devices captures an inbound channel (dedicated resources are assigned to each remote unit being involved in a collision, col. 4, lines 1-16).

Regarding claims 3, 31, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 2 and 30, wherein said one of said plurality of second remote terminal devices determines if there is a high likelihood that a moderate to long transmission is being initiated (when there is additional information to be transmitted by a remote unit within a certain period of time, col. 10, lines 1-19), and when such a determination is made said one of said plurality of second remote terminal devices requests allocation of an assigned inbound channel (a dedicated non-contention access block is assigned to the remote unit for transmission of data, col. 10, lines 1-19).

Regarding claims 4, 32, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 2 and 30, wherein if said one of said plurality of second remote terminal devices determines that said one of said plurality of second remote terminal devices has been active for a predetermined period of time (when a remote unit continues to transmit data within a certain period of time after the latest transmission, col. 10, lines 1-19), said one of said plurality of second remote terminal devices directly accesses said inbound channel (the remote unit accesses the indicated resource over the non-contention access block for transmission of data, col. 10, lines 1-19).

Regarding claims 5, 33, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 2 and 30, wherein said one of said plurality of second remote terminal devices determines that said one of said plurality of second remote terminal devices has been sufficiently active during a sliding window (when a remote unit has additional data to transmit within a certain period of time after the latest transmission, col. 10, lines 1-19), said one of said plurality of second remote terminal devices directly accesses said channels (the remote unit accesses the indicated resource within the non-contention access block for transmission of data, col. 10, lines 1-19).

Regarding claims 6, 34, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 2 and 30, wherein when an inbound one of said channels has been allocated to said one of said plurality of second remote terminal devices (once the indicated resource has been assigned to the remote unit for transmission, col. 10, lines 1-19), said one of said plurality of second remote terminal devices can no longer randomize its inbound transmissions and transmits on a predetermined portion of said inbound channel (the remote unit needs to transmit over the indicated resource within non-contention access block, col. 10, lines 1-19) whenever said one of said plurality of second remote terminal devices has inbound data to transmit (when the remote has additional data to transmit, col. 10, lines 1-19).

Regarding claims 7, 35, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 2 and 30, wherein inactive ones of said

plurality of second remote terminal devices are configured to randomize their transmissions over said channels (ALOHA access channel may be used as the contention-type access block for initial attempt to transfer data from remote units to the hub station, col. 6, lines 41-51 and Fig. 2).

Regarding claim 8, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claim 1, wherein a hub site determines threshold criteria for determining when said remote terminal devices are active (the hub station uses a continue to transmit within a certain period of time as a threshold, col. 10, lines 1-19), and allocates said channels (dedicated resources within the non-contention access block are assigned to these remote units, col. 10, lines 1-19).

Regarding claims 9, 36, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 8 and 35, wherein said hub site gathers traffic statistics from said remote terminal devices, identifies active ones of said remote terminal devices using said traffic statistics (identifies which remote unit with more than 10% loading capacity, col. 9, lines 40-57), and allocates inbound ones of said channels to said active remote terminal devices (a non-contention access block is assigned to the remote unit with more than 10% loading capacity, col. 9, lines 40-57), and informs said plurality of first remote terminal devices and said plurality of second remote terminal devices of said allocation (the non-contention access type allocation response is transmitted as a broadcast message, col. 7, lines 53-64).

Regarding claim 10, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claim 3, wherein said one of said plurality of second remote terminal devices informs said plurality of first remote terminal devices and said plurality of second remote terminal devices of said allocation (the remote unit informs other remote units of the non-contention access type allocation response via a broadcast message transmitted the hub station, col. 7, lines 53-64).

Regarding claims 11, 37, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 8 and 33, wherein each of said plurality of second remote terminal devices monitors their transmissions and notifies said hub site when it becomes active and is likely to have a medium to long transmission (the remote unit notifies the hub station that it has additional data to transmit within a certain period of time, col. 9, lines 58-67 and col. 10, lines 1-19).

Regarding claims 12, 38, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 11 and 33, wherein said hub site allocates a portion of inbound ones of said channels (indicated resource within a non-contention access block) to a newly active one of said plurality of second remote terminal devices (col. 10, lines 1-19).

Regarding claims 13, 39, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 1 and 33, wherein collisions between inbound packets from different ones of said first and second remote terminal devices are prevented by allocating one of frequency, time slot, and frequency and time slot to said ones of said first and second remote terminal devices that generate the most inbound traffic (selecting a non-contention type access block for use by the remote unit that generates more than 10% loading on the contention-type access block, col. 9, lines 40-57).

Regarding claims 14, 40, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 13 and 39, wherein when there are more active ones of said first and second remote terminal devices than there are channels (should the loading on the contention-type access block becomes so high that it is dominated by collisions), each of said first and second remote terminal device is allocated a mini-slot (the system uses the reserved block as a means of requesting a scheduled resource, col. 10, lines 59-67).

Regarding claims 16, 42, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 14 and 40, wherein said mini-slot is a time slot at an intermittent frequency (the non-contention access block is assigned a time slot at a certain frequency slot, col. 13, lines 39-43).

Regarding claims 18, 44, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 14 and 40, wherein inbound one of said

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channels are allocated first to voice traffic followed by data traffic (voice is allocated on non-contention type access block while data is allocate on contention type access block, col. 11, lines 59-67 and col. 12, lines 1-6).

Regarding claims 19, 45, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 8 and 40, wherein said hub site calculates a load for each of said first and second remote terminal device and retains said loads in memory (col. 9, lines 40-57).

Regarding claims 21, 47, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 19 and 45, wherein said hub site transmits changes to said allocation table to said first and second remote terminal devices (the hub station informs other remote units of the non-contention access type allocation via a response transmitted as a broadcast message, col. 7, lines 53-64).

Regarding claim 22, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claim 19, wherein said hub site updates said allocation table every inbound frame (the hub station receives notification message about each inbound frame, col. 7, lines 1-24).

Regarding claims 23, 49, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 8 and 33, wherein said hub site

maintains a number of said channels and frequencies of all of said channels said first and second remote terminal devices can transmit on in memory (col. 13, lines 39-43).

Regarding claim 56, Carneal discloses a system for communicating with a large number of remote satellite locations comprising:

a plurality of a first set of remote terminal devices (remote units 108A, 108B, Fig. 2);
and
a plurality of second remote terminal devices operating in a dedicated mode (communicating in a non-contention access block, col. 6, lines 52-59 and 108C, Fig. 2) using the same overlapping channels (sharing the same communication channel resources, col. 6, lines 13-52), wherein said one of said plurality of second remote terminal devices informs said plurality of first remote terminal devices and said plurality of second remote terminal devices of said allocation (the remote unit informs other remote units of the non-contention access type allocation response via a broadcast message transmitted the hub station, col. 7, lines 53-64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 15, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carneal et al. in view of Ho (USP 6,747,959).

Regarding claims 15, 41, Carneal discloses all the aspects of the claimed invention set forth in the rejection of claims 14 and 40 above, except fails to explicitly show said mini-slot is a time slot every third frame. However, Ho discloses that each frame in an uplink channel has a selectable number of minislots. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the minislot assignment of Carneal with the teaching of Ho in providing a selectable number of minislots within a frame such that the minislot is a time slot every third frame. The motivation to do so is to dynamically multiplex voice and data in a multi-access channel that provides a predetermined quality of service.

Regarding claims 17, 43, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claim 14 and 40. Carneal also discloses (the non-contention access block is assigned a time slot at a certain frequency slot, col. 13, lines 39-43), except fails to explicitly show said mini-slot is a time slot every third frame and at an intermittent frequency. However, Ho discloses that each frame in an uplink channel has a selectable number of minislots. Therefore, it would have been obvious to one of ordinary skill in

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the art at the time the invention was made to modify the minislot assignment of Carneal with the teaching of Ho in providing a selectable number of minislots within a frame such that the minislot is a time slot every third frame. The motivation to do so is to dynamically multiplex voice and data in a multi-access channel that provides a predetermined quality of service.

Allowable Subject Matter

5. Claims 20, 27, 28-29, 46, 48, 53, 54-55 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 24-26, 50-52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and if the claim objections set forth in claims 25-26, 51-52 above are overcome.

The following is a statement of reasons for the indication of allowable subject matter:

In claims 20, 46, wherein said hub site correlates said loads for each of said first and second remote terminal devices with a last time slot in which a burst was last received from each of said first and second remote terminal devices, and maintains said correlated loads in an allocation table.

In claims 24, 50, wherein said first and second remote terminal devices have a multi-slot counter, said mini-slot counter in each of said first and second remote terminal device being synchronized with said hub site and each of said first and second remote terminal devices.

In claims 25, 51, wherein said load for each of said first and second remote terminal device is calculated according to the following formula:

$L_{\text{new}} = L_{\text{old}} (1 - \tau)^n + \tau$ where τ is a configurable constant, n is the number of time-slots since a last time-slot on which a packet was received from a remote terminal device, and L_{old} is the previous load value of the remote terminal device.

In claims 26, 52, wherein said load for each of said first and second remote terminal device is calculated according to the following formula:

$L_{\text{new}} = L_{\text{old}} * M * (1 - 1/N)^n + M / N$ where M is a normalizing constant M , N is a time constant, which is the number of time-slots in T seconds (where T is a configuration parameter), and τ is $1/N$.

In claims 27, 53, wherein said allocation table comprises information relating to a number of frequencies a remote terminal device is capable of utilizing, a number of mini-slots said remote terminal device may receive, a total number and identification of free inbound ones of said channels and mini-slots, a minimum and assigned maximum load value allocated to each of said first and second remote terminal device, current inbound resources allocated to each of said plurality of first and second remote terminal devices, whether said remote terminal device

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may become an active site, and whether said remote terminal device has any weighting factors associated with its load calculations.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6,859,464 to Abi-Nassif et al.

US Publication 2005/0053033 to Kelly et al.

US Patent 6,845,085 to Wright et al.

US Publication 2005/0149649 to Carneal et al.

US Publication 2001/0019542 to Dichania et al.

US Publication 2004/0072570 to Smith

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



WELLINGTON CHIN
ASSISTANT PATENT EXAMINER